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QUICKRAIL

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(57) Claim

1. A socket comprising a hollow tube adapted to receive a post therein, the hollow tube having a longitudinally extending latch or spring plate fixed at one end to the inner wall of the tube, the latch or spring plate at its free end being placed in its normal position towards the axis of the tube, the latch or spring plate further being adapted to catch or lock behind a circumferential groove of the post when the post is inserted in the tube, and being adapted to be released from the groove by a release key inserted between the post and the tube.
11. A post comprising a circumferential groove, the groove being adapted to catch or lock with a longitudinally extending spring plate of a hollow tube when the post is inserted in the tube, the groove further being adapted to be released from the spring plate by a release key inserted between the post and the tube thereby releasing the post.

AUSTRALIA

Patents Act 1990

**ORIGINAL
COMPLETE SPECIFICATION
STANDARD PATENT**

Invention Title: QUICKRAIL

The following statement is a full description of this invention, including the best method of performing it known to me:-

SEE ATTACHED

QUICKRAIL SPECIFICATION

This invention relates to a socket assembly for releasably securing a post, pipe, tube or shaft to a socket.

This invention comprises a cast-in "socket" featuring the post latch or spring plate, cap and mounting plate. The socket internal cross section would be of the same internal cross section shape as the post only slightly larger to allow the post to slide inside.

The socket would be cast into the concrete by nailing or mechanically fixing to the formwork. It would be fixed such that a post can be inserted either vertically down, vertically up or horizontally into the socket.

The main object of the present invention is for use in conjunction with handrails on building sites or where a post or handrail needs to be relocatable.

It relieves the problem of dynabolts or concrete bolts being used to fix handrail posts, or other items to concrete surfaces.

The object of the invention is to provide a system whereby handrails or other items can be erected and removed quickly for relocation to other floors or locations and not allowing removal unless a release key is used. Once the post or handrail has been inserted into the socket it can't be pulled out unless the key is inserted at which point the post can be quickly and easily removed.

Features of this invention include :

A socket (1) to be cast into concrete comprising mounting plate (2), for fixing to formwork and sealed at other end to prevent concrete from entering tube whilst concreting, latch or spring plate (3) with free end being placed in its normal position towards the axis of the tube forming the socket, groove (4) along the inner wall of the tube in line with latch (3) such that a key (5) can be inserted between the post and the socket forcing the latch (spring plate) to retract and allow removal of post.

A preferred embodiment of the invention will now be described with reference to the drawings in which;

Fig 1 is an arrangement showing a post in the locked position.

Fig 2 is an arrangement showing the insertion of a release key .

Fig 3 shows details of the post, groove, cap and key.

The complete operation of the invention comprises fixing of the socket (1) with attached base plate (2) to the formwork by means of nail holes provided in base plate (2). Socket (1) and attached base plate (2) cast in by pouring concrete around. Removal of cap (9) and insertion of post (6) deep enough to allow latch (3) to lock behind the groove in the post thus preventing its removal. When removal of post is required key (5) is inserted in groove recess (4) between post and latch thus pushing the latch back into the recess and away from the groove in the post allowing the post to be removed.

In a preferred embodiment of the invention the socket may be provided with several latches (springs) around the internal wall of the socket thus giving added resistant strength to retaining the post in the socket preventing its removal. This will in turn require several release keys to be inserted simultaneously to allow post removal.

In a further preferred embodiment of the invention the socket base plate, cap and latch (spring) are formed from a resilient polymeric material, metallic material, steel, aluminium, or plastic.

A further preferred embodiment of the invention is that the socket can be cast in, in the inverted position such that a post can be inserted into the ceiling and hold up items fixed in turn to the post.

In another preferred embodiment of the invention is a cap which sits around the post and pushed down over the socket after the post has been inserted to prevent any debris from falling down the recess into the socket.

A further preferred embodiment of the invention is the post (6) fixed to a handrail or any item requiring a removable fixing to a socket or concrete surface, comprising a groove (7) to allow the latch (3) to catch behind upon insertion into the socket.

In a further preferred embodiment of the invention is the release key (5) made slightly smaller than the groove in the socket, which when inserted between the post and the socket forces the latch to retract thus allowing removal of the post.

A brief consideration of the above described embodiment will indicate that the invention is extremely simple but nevertheless results in a cast in socket assembly which can be made to any diameter shape or size which enables the quick insertion and subsequent locking of a post. It allows by means of a key subsequent quick removal of post by inserting the key and disengagement of locking latch from behind the groove in the post.

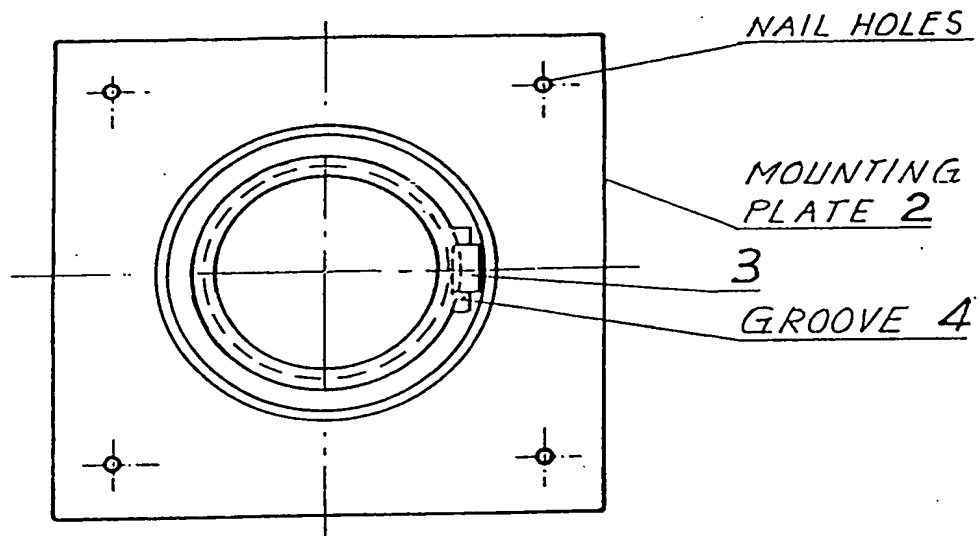
CLAIMS

1. A socket comprising a hollow tube adapted to receive a post therein, the hollow tube having a longitudinally extending latch or spring plate fixed at one end to the inner wall of the tube, the latch or spring plate at its free end being placed in its normal position towards the axis of the tube, the latch or spring plate further being adapted to catch or lock behind a circumferential groove of the post when the post is inserted in the tube, and being adapted to be released from the groove by a release key inserted between the post and the tube.
2. A socket as claimed in Claim 1 further comprising a flat base plate fixed to one end of the hollow tube and sealed at the other end to prevent concrete from entering the tube whilst concreting and removed later to allow the post to be inserted.
3. A socket as claimed in the Claim 2 wherein the flat base plate is nailed or fixed to formwork.
4. A socket as claimed in any one of the preceding claims, wherein the tube is cast into concrete.
5. A socket as claimed in any one of the preceding claims further comprising a plurality of latches or spring plates equally spaced around the inner wall of the tube, each latch or spring plate being adapted to catch or lock with the circumferential groove of the post when the post is inserted in the tube and being adapted to be released from the groove by a release key or multiple release keys inserted between the post and tube.
6. A socket as claimed in any one of the preceding claims further comprising a groove or recess for insertion of the release key between the tube and the post.
7. A socket as claimed in any one of the preceding claims wherein the socket is made of steel.
8. A socket as claimed in any one of Claims 1 to 6, wherein the socket is made of aluminium.
9. A socket as claimed in any one of Claims 1 to 6, wherein the socket is made of plastic.
10. A socket as claimed in Claim 1 further comprising a removable cap, in place whilst casting socket into concrete.
11. A post comprising a circumferential groove, the groove being adapted to catch or lock with a longitudinally extending spring plate of a hollow tube when the post is inserted in the tube, the groove further being adapted to be released from the spring plate by a release key inserted between the post and the tube thereby releasing the post.
12. A post as claimed in Claim 11 wherein the post is a handrail post.

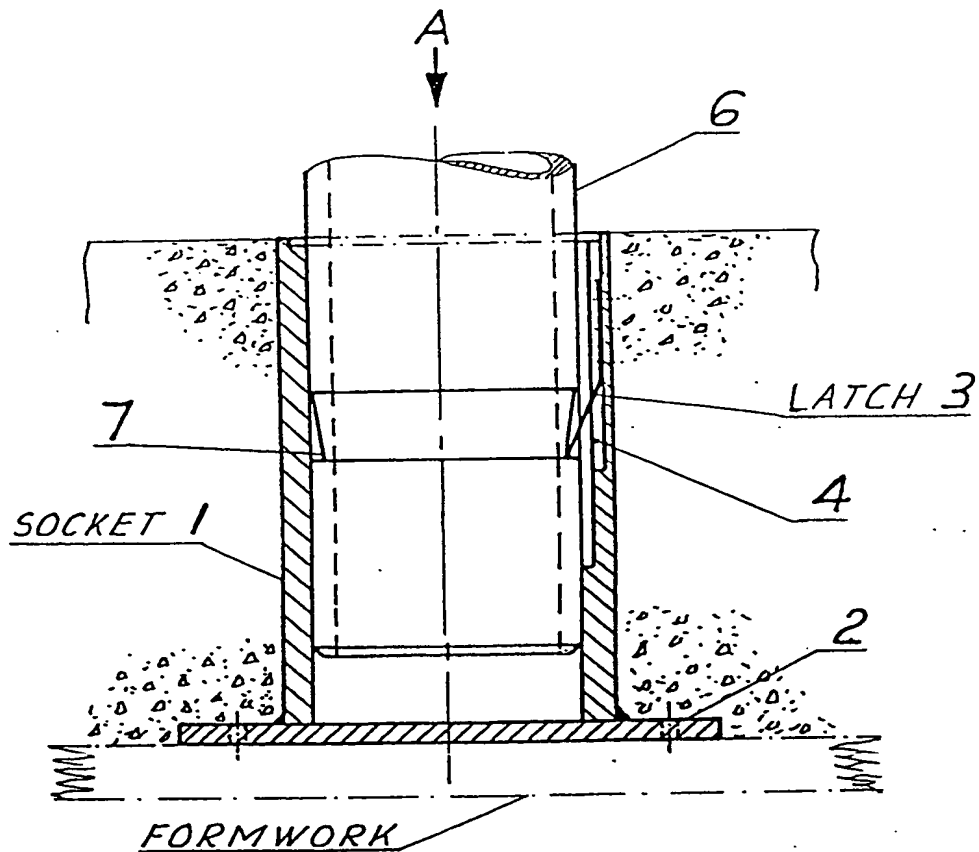
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13. A post as claimed in Claim 11 wherein the post is fixed to any item which is to be held in place by means of the socket as claimed in any of the claims 1 to 10.

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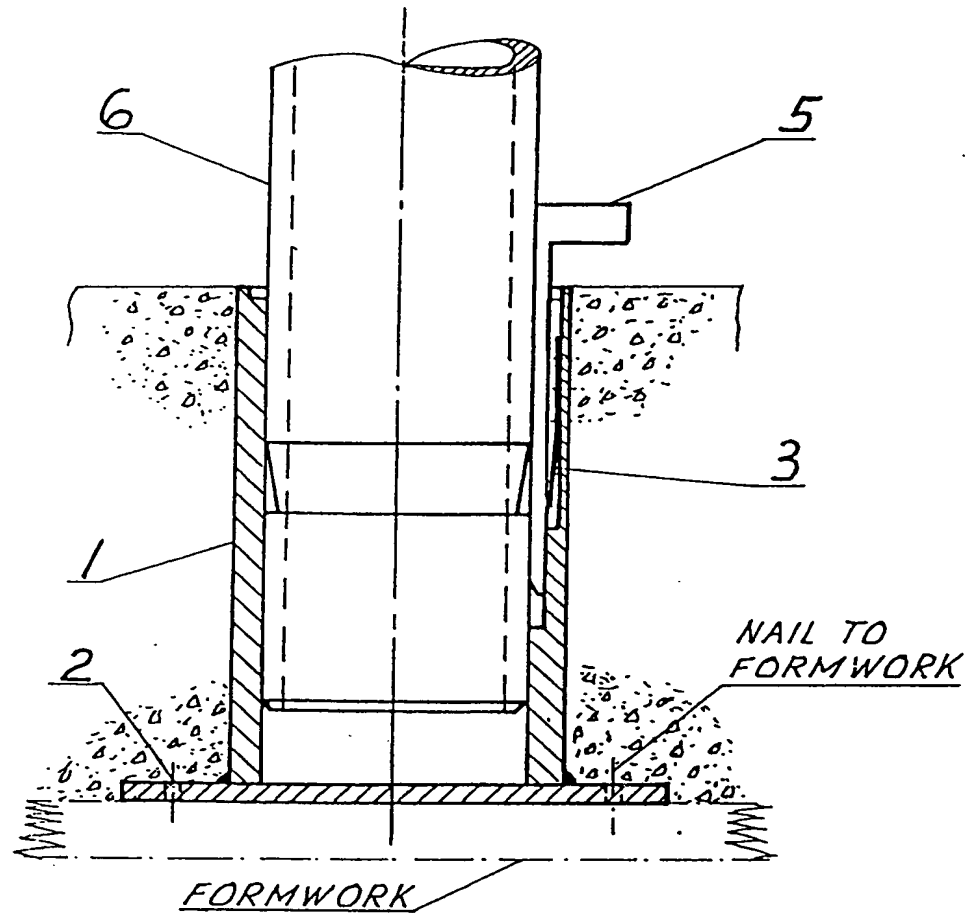
VIEW A



ARRANGEMENT SHOWING
POST IN LOCKED POSITION

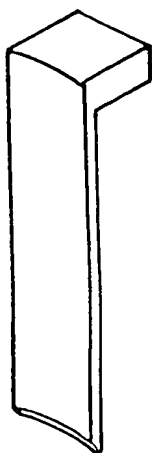
FIG. 1

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ARRANGEMENT SHOWING
KEY INSERTED
POST CAN NOW BE PULLED OUT

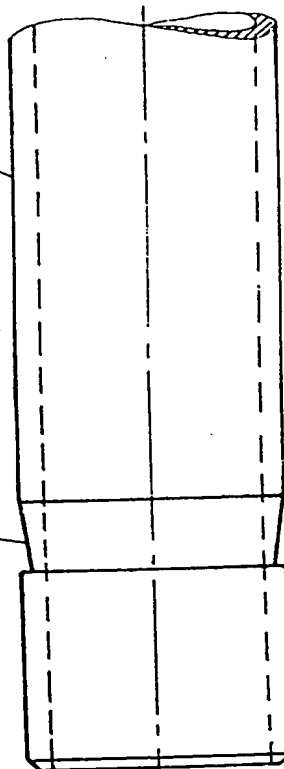
FIG. 2



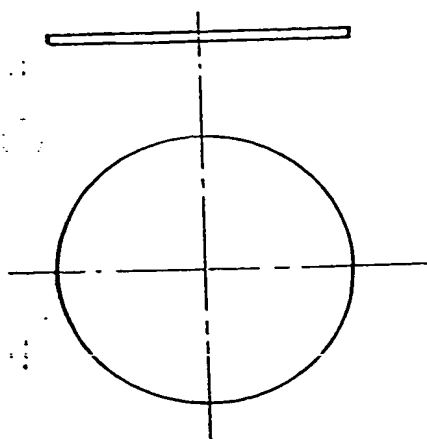
KEY 5

POST 6

GROOVE 7



POST



CAP 9

FIG. 3

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